ABSTRAK

Telah dilakukan penelitian tentang mikroenkapsulasi kaptopril dengan penyalut kitosan dan eudragit RS PO menggunakan metode emulsifikasi penguapan pelarut. Mikrokapsul kaptopril diformulasi dengan perbandingan obat dan polimer 1:3, 1:4 dan 1:5. Penelitian ini bertujuan untuk meningkatkan bioavailabilitas dan mengendalikan pelepasan obat. Evaluasi mikrokapsul yang dihasilkan meliputi : efisiensi penjerepan, distribusi ukuran partikel, spektroskopi Inframerah, morfologi permukaan partikel dengan *Scanning Electron Microscopy* (SEM), difraksi sinar-X dan uji disolusi. Hasil penelitian menunjukkan mikrokapsul yang diperoleh memiliki ukuran partikel rata-rata antara 10-100 μm. Bentuk morfologi yang dihasilkan tidak beraturan (*Irreguler spheris*) pada formula 1 (1:3), bulat pada formula 2 (1:4) dan formula 3 (1:3). Hasil efisiensi enkapsulasi terbesar pada formula 2 (1:4) sebesar 36,943%. Uji disolusi mikrokapsul secara *in vitro* menggunakan medium HCl 0,1 N dan dapar pospat (pH 6,8). Hasil disolusi menunjukkan pelepasan mikrokapsul kaptopril dapat mencapai 100% setelah 6 jam. Model kinetika pelepasan kaptopril dari mikrokapsul mengikuti persamaan Korsmeyer Peppas.

Kata kunci : Kaptopril, mikrokapsul, eudragit RS PO, kitosan, emulsifikasi penguapan pelarut.

ABSTRACT

The study on microencapsulation of captopril with chitosan and eudragit RS PO as the coating agents have been done by using emulsification solvent evaporation method. Microcapsules of captopril were prepared with drug and polymers ratios 1:3, 1:4 and 1:5. The aim of this study was to improves bioavailability of drug and controlled release drug delivery system. The prepared microcapsules were evaluated for entrapment efficiency, particle size distribution, observation of surface morphology with Scanning Electron Microscopy (SEM), infrared spectroscopy (FT-IR), X-ray diffraction and dissolution studies. The study revealed that the mean particle size of microcapsules ranged from 10 to 100 μm. The surface morphology analysis showed irreguler spherical shaped to formulation 1 (1:3), spherical shaped to formulations 2 (1:4) and 3 (1:5). The highest encapsulation efficiency is formula 2 (1:4) at 36,943 %. The in vitro drug dissolution were studied in 0,1 N chloride acid and phosphate buffer (pH 6,8). Dissolution data showed microcapsules of captopril can release the drug at 100% after the sixth hours. The release kinetic model of microcapsules followed Korsmeyer Peppas equation.

Keywords : Captopril, microcapsules, eudragit RS PO, kitosan, emulsification solvent evaporation